

# Public Services & Facilities Element

## EXECUTIVE SUMMARY

The Public Services and Facilities element recommends programs for water and wastewater treatment, residential refuse collection and disposal, street maintenance and the provision of private utility services.

**Water and wastewater treatment:** manage both systems to provide adequate and reliable collection and treatment.

**Solid waste management:** provide the most safe and cost-effective solid waste collection and disposal system possible.

**Other public utility systems:** coordinate installation and maintenance of private utility lines to minimize public inconvenience, visual blight and the degradation of the quality of public streets.

**Street maintenance:** maintain the quality and life of city streets.

## INTRODUCTION

The Public Services element describes how the city of Phoenix maintains, improves, and provides adequate public services. Public services the city provides include water treatment and distribution, wastewater collection and treatment, residential refuse collection and disposal, and street maintenance. Electric power services, natural gas facilities, cable TV communications, and telephone services are provided by private concerns all operating under franchise or license agreement from the city. The system that provides public services largely resides under publicly owned rights-of-way.

The existence and delivery of adequate utility services are the foundation of the lifestyle Phoenicians enjoy. One of the most important functions of the city of Phoenix is to assure that adequate public facilities are provided to meet the needs of all people and developed lands within the city. To ensure a high quality of life, existing facilities must be maintained and improved. In addition, expanding these public services and facilities is necessary for urban development and economic growth. A complete range of public utilities is available to support urban development. Monopoles are now located throughout the city due to changes in communications technology. The installation of

fiber-optic cable is well under way as demand for this option grows. Rapid growth has created the need to finance additional city facilities with impact fees.

The Public Services element relates to the Land Use, Growth Area and Cost of Development elements of the General Plan, as they describe how the city finances and locates infrastructure. The Open Space element addresses the siting of utilities through preserve lands. Water resources are addressed in the Water Resources element. The Conservation, Rehabilitation and Redevelopment element addresses renovating older infrastructure to current standards. The Environmental Planning and Natural Resources Conservation elements address storm drainage and impact siting, construction and monitoring city facilities for water, wastewater, and refuse, as well as procedures to reduce the need for these services. Land use, as identified on the General Plan Map, shows the locations of the larger public facilities, including large uses such as landfills. The Public Buildings and Safety elements address site locations of city facilities such as fire, police and emergency services.

**GOAL 1 PUBLIC INFRASTRUCTURE:** PUBLIC SERVICES AND FACILITIES SHOULD SERVE THE PRESENT POPULATION AND FUTURE GROWTH EFFICIENTLY AND RELIABLY.

**Policies:**

1. Continue coordinating utilities and city facilities to minimize impacts and costs.
2. Continue coordinating between the planning and development of public services facilities and land use planning.
3. Provide reliable public utility delivery to accommodate balanced residential, commercial, and industrial growth in all urban villages and other areas in the Phoenix Planning Area.
4. Minimize capital and operating costs through management techniques when providing public services and facilities.
5. Continue to explore and implement technological advances for the delivery of utility services.
6. Support future bond issues to assist with funding public services delivery and public facilities construction.
7. Continue using impact fees to fund facilities for new growth.
8. Continue to use current revenues and bond funds (secondary property taxes) to pay for repair, replacement and/or upgrading of existing infrastructure.
9. Manage public rights-of-way to minimize disruption to the public while undergrounding utilities.

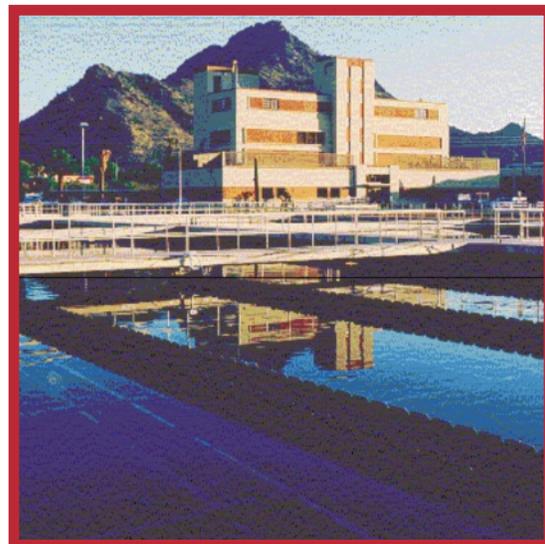
**GOAL 2 WATER TREATMENT AND DISTRIBUTION:** WATER TREATMENT, TRANSMISSION AND DISTRIBUTION FACILITIES SHOULD BE PROVIDED AND MAINTAINED TO PROVIDE A SAFE, ECONOMICAL AND UNINTERRUPTED SUPPLY OF WATER TO PHOENIX WATER CUSTOMERS. (THIS ELEMENT DISCUSSES WATER TREATMENT AND DELIVERY FACILITIES ONLY. THE NEW WATER RESOURCES ELEMENT DISCUSSES THE DEVELOPMENT AND ACQUISITION OF ADDITIONAL RAW WATER SUPPLIES FOR THE FUTURE.)

The city maintains a 50-Year Water Facilities Master Plan that is updated approximately every five years. The plan changes in response to changing planning assumptions, new technology and new water and environmental standards.

In 2000, the Phoenix water system serviced approximately 530 square miles. Water supplies include groundwater from approximately 40 wells, and surface water from the Salt and Verde Rivers as well as the Colorado River via the Central Arizona Project. The city currently operates and maintains approximately 5,600 miles of water mains, ranging in size from less than 2 inches in diameter to 108 inches in diameter. The city operates five water treatment plants including Verde, Deer Valley, Squaw Peak, Val Vista and Union Hills. Two new water treatment plants are planned to meet future needs.

**Policies:**

1. Continue to coordinate the planning and development of water distribution facilities with other infrastructure land use planning.



**FIGURE 1 - Squaw Peak Water Treatment Plant**

2. Maintain water treatment and distribution system redundancy to minimize the chance of water services outages due to facility or distribution system breakdowns or malfunctions.
3. Protect the public potable (drinkable) water supply from the possibility of contamination or pollution, by preventing the backflow of contaminants or pollutants into that system.

4. Maintain water mains, meters, services, valves, fire hydrants and other water facilities to ensure that they are in good order.

**GOAL 3 WASTEWATER COLLECTION AND TREATMENT AND WATER REUSE: ADEQUATE AND RELIABLE COLLECTION AND TREATMENT OF WASTEWATER AND PRODUCTION OF HIGH QUALITY WATER FOR REUSE AND OTHER RESOURCES SHOULD BE PROVIDED AT A REASONABLE COST.**

The city maintains a 50-Year Wastewater Facilities Master Plan that is updated approximately every five years. The plan changes in response to changing planning assumptions, new technology and new water and environmental standards.

The city of Phoenix operates two wastewater treatment plants the 23<sup>rd</sup> Avenue plant and the 91<sup>st</sup> Avenue plant and one water reclamation plant the Cave Creek plant. The city maintains approximately 4,104 miles of sewer lines transporting wastewater from a service area of some 480 square miles, serving over 324,292 separate connections. The 91<sup>st</sup> Avenue plant also provides treatment services to the Valley communities of Mesa, Scottsdale, Tempe, and Glendale. See the Environmental Planning element for further information on wastewater quality issues.



**FIGURE 2 - 23<sup>rd</sup> Avenue Wastewater Treatment Plant**

**Policies:**

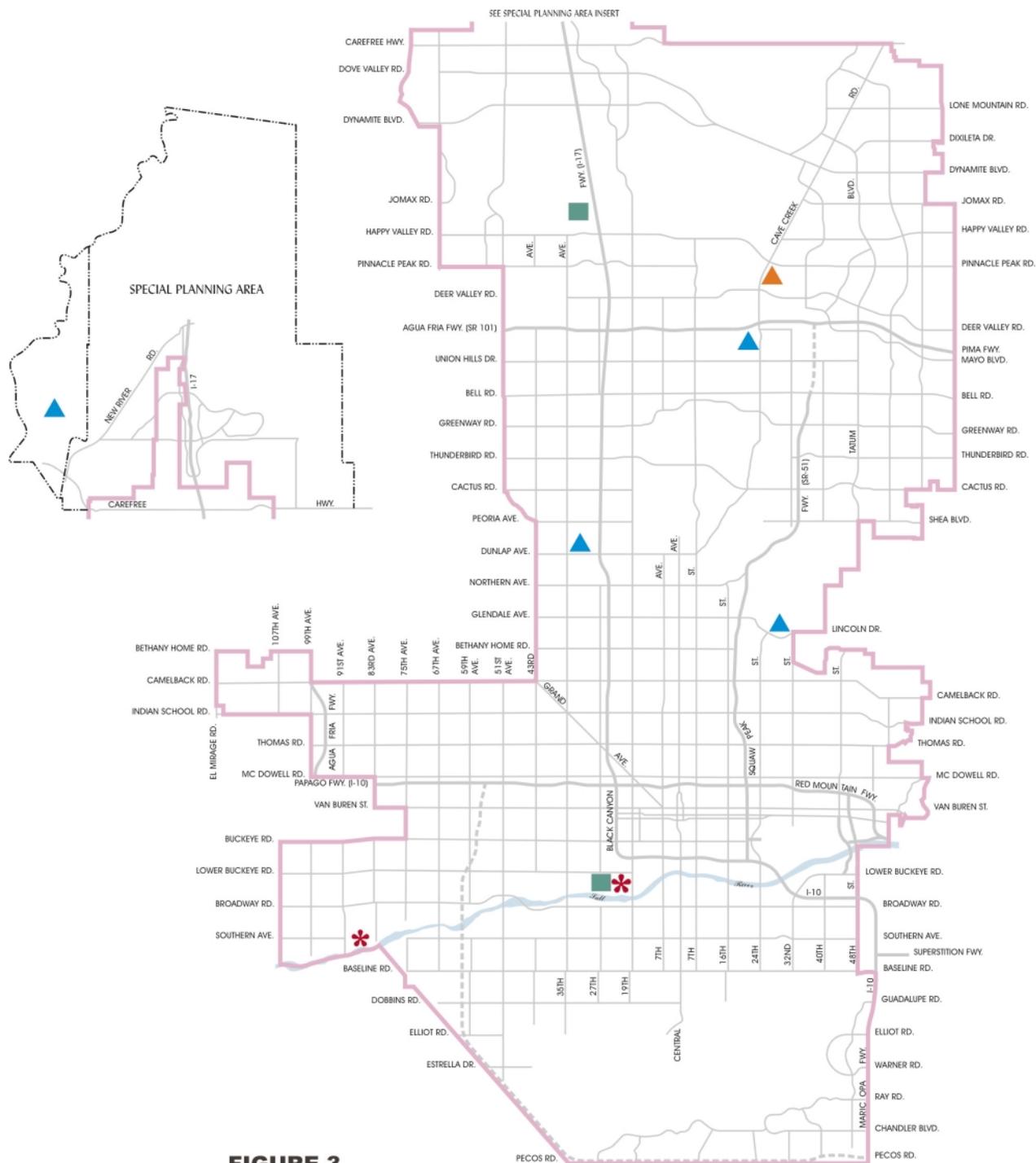
1. Continue coordination between planning and development of wastewater facilities and land use planning, to achieve adequate capacity and compatible siting of facilities with adjacent land use.

2. Maximize reclaimed water use by large turf areas and other appropriate users by providing adequate reclaimed water distribution systems.
3. Provide sufficient treatment plants and collection lines to ensure an adequate system of wastewater collection and treatment.
4. Continue to use treatment technology of wastewater and the Phoenix industrial pretreatment program to provide a safe, healthy environment for Phoenicians and other users of the Salt River.
5. Minimize capital and operating costs through management techniques for providing wastewater service.

**GOAL 4 SOLID WASTE MANAGEMENT: THE HIGHEST LEVEL OF COST-EFFECTIVE SOLID WASTE COLLECTION, DISPOSAL, AND RECYCLING, ENGINEERING, PLANNING AND LANDFILL MANAGEMENT SERVICES SHOULD BE PROVIDED TO THE PUBLIC.**

The city will accomplish this goal through using current technology incorporated into an innovative management process, supported by a motivated work force functioning in a participatory management environment.

The Solid Waste Management Program assists in providing a safe and aesthetically acceptable environment through effective and integrated management of the solid waste stream, including collection, disposal, source reduction, recycling and remediation activities. In 2000, Solid Waste Management collected over 650,000 tons of residential solid waste and recyclable material from nearly 321,000 households. The Solid Waste Management Facility (SWMF) sits on a 407-acre site bordered by 27th Avenue to the east, 35th Avenue to the west, Lower Buckeye Road to the north and the Rio Salado to the south. The SWMF itself is constructed on 62 acres of land, and is designed to handle 3,800 tons of garbage and recyclables daily. The Public Works Department and Phoenix Arts Commission have collaborated on developing a master plan to transform the 407-acre site into a center for environmental learning and enterprise projects.



**FIGURE 3**

**PUBLIC FACILITIES**

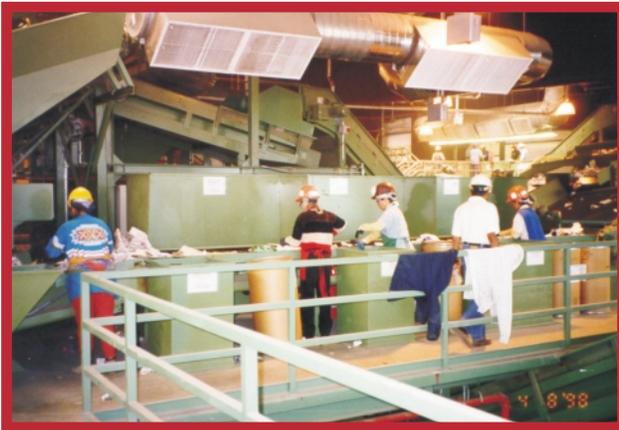
- \* WASTEWATER TREATMENT PLANT
- ▲ WATER RECLAMATION PLANT
- ▲ WATER TREATMENT PLANT
- SANITARY LANDFILL





**FIGURE 4 - City Operated Tandem Starr System Collection Truck**

Operations at the 27<sup>th</sup> Avenue Solid Waste Management Facility (SWMF) include solid waste transfer; a materials recovery facility (MRF) for residential recycling, residential and commercial small load disposal, vegetation/wood waste diversion and mulching; and public education programs. The 27<sup>th</sup> Avenue MRF is the only city-owned MRF. It processes over 79,000 tons of recyclables annually, with a capacity of up to 83,200 tons. The MRF is operated privately, under contract with the city. Recyclables collected in the west and north regions are processed at the 27<sup>th</sup> Avenue MRF. Recyclable materials collected in the east region are delivered to the University MRF, at 19<sup>th</sup> Street and University Drive, which is privately owned and operated under contract to the city.



**FIGURE 5 - Sorting Recyclables at the 27<sup>th</sup> Avenue Facility**

Located at I-17 and Happy Valley Road, the Skunk Creek Landfill is the only landfill operated by the city of Phoenix, which disposed of over 2,700 tons of garbage there daily in 2000. However, because the landfill is expected to reach capacity in 2005, Solid Waste Management has assembled a team to find a site for a landfill and related solid waste transfer station to replace it.

The city recently awarded a seven-year contract for the transfer hauling of solid waste from the 27<sup>th</sup> Avenue SWMF to Skunk Creek Landfill. Recyclable materials collected in the north service region and delivered to Skunk Creek Landfill are transferred to the 27<sup>th</sup> Avenue MRF for processing and marketing.

In order to implement the Phoenix Recycles Program, the city received a variance from the state that allows the city to collect garbage once per week and recyclables once per week in two separate collections. Implementation of the Phoenix Recycles Program was completed in February 2000. Currently, the city recycles over 105,000 tons of solid waste annually.

The city also provides quarterly collection of bulk trash, the majority of which is grass clippings, tree trimmings, and other green waste. However, other items that are too large for regular containers, such as appliances and furniture, also are accepted.



**FIGURE 6 - Bulk Trash Collection**

In order to provide consistent service, Phoenix is divided into three service regions east, west, and north with each region comprising two service areas. Each region houses the necessary staff and equipment needed for contained collection, bulk trash collection, and environmental monitoring. Using a "managed competition" policy, the city competes with the private sector for determining the most cost-effective services to residents. Nine competitive bidding processes have been conducted, with six contracts being awarded to the private sector, and three to the city. The three most recent bid awards resulted in savings of over \$7 million during the life of the five-year contracts. City staff currently serves the entire west region and half of the north and east regions. Private contractors provide contained collection service in one service area of the

east region, and contained collections in one service area of the north region.

**Policies:**

1. Participate in managed competition to ensure the highest level of quality service at the lowest cost to the city and our customers.

**Recommendations:**

- A. Continue the managed competition process.
- B. Study a managed competition process for residential bulk trash collection.

2. Maintain responsibility for providing core solid waste services through direct service or private contractors.

**Recommendations:**

- A. Strategically site a landfill and related solid waste transfer station and material recovery facility to replace Skunk Creek Landfill and accommodate growth in the north portion of the city.
- B. Determine the best landfill option for the least cost for the next 50 years.
- C. Assess the feasibility of a commercial recycling program at the 27<sup>th</sup> Avenue Material Recovery Facility.
- D. Evaluate volume-based solid waste collection service for residents.
- E. Install methane gas extraction systems and conduct a gas-to-energy evaluation at Skunk Creek Landfill, and evaluate the use of power generated from the 27<sup>th</sup> Avenue Landfill methane gas system.
- F. Study and develop appropriate uses of closed landfills.

3. Monitor residential solid waste collection contracts for adherence to performance standards developed by solid waste management.

4. Encourage the study of alternative solutions to solid waste disposal, including converting refuse to energy.

**Recommendation:**

- A. Evaluate a comprehensive green and wood waste program that includes a marketing plan for the material generated through the program.

5. Ensure that future development and activities at the 407-acre 27th Avenue Solid Waste Management Facility site are consistent with the guidelines set forth in the site master plan.

**Recommendation:**

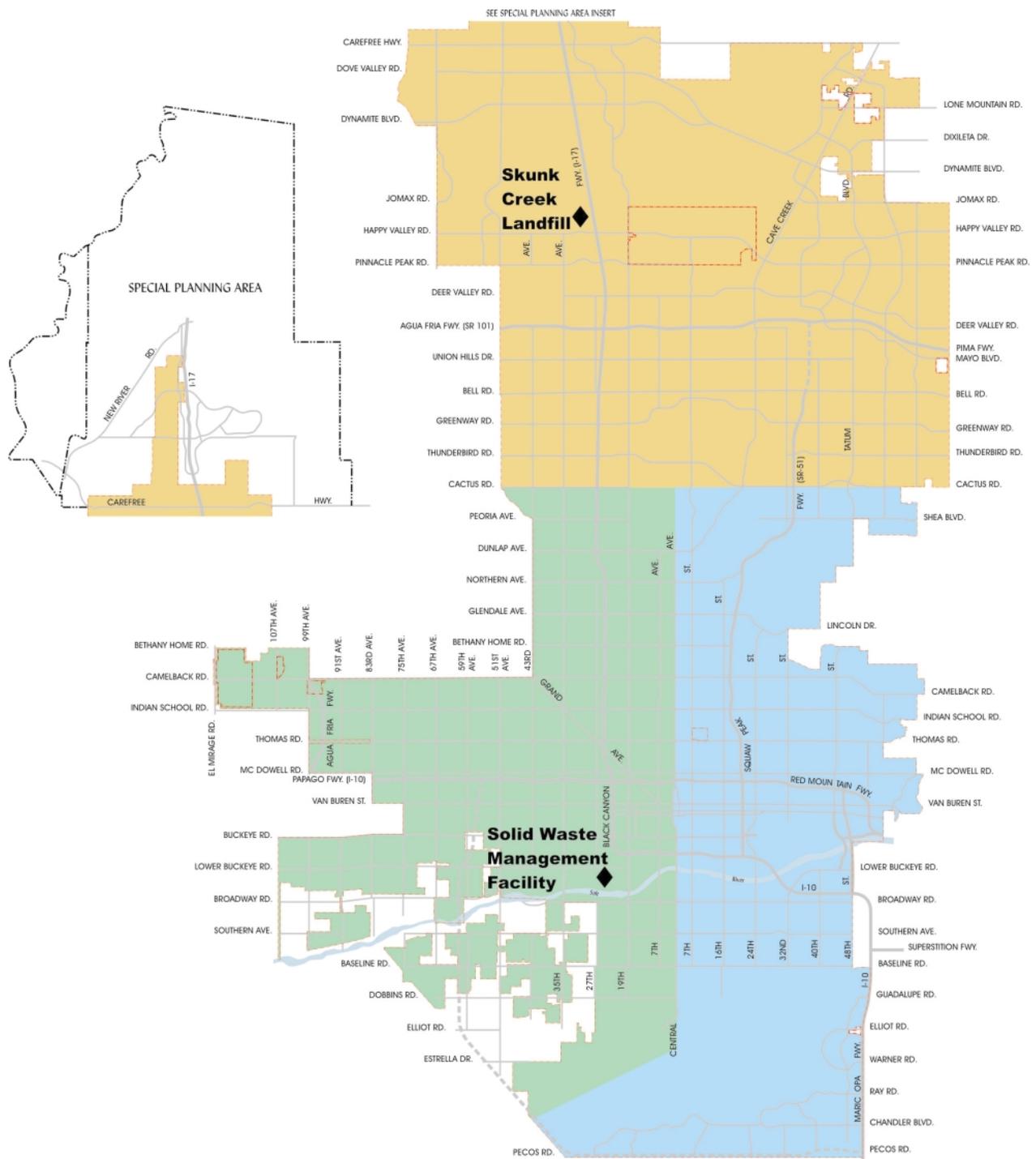
- A. Develop the 27<sup>th</sup> Avenue Solid Waste Management Facility in the future according to the Campus Master Plan.

**STORM DRAINAGE (Natural Resources Conservation element addresses Flooding Protection in Goal 1, and the Open Space element discusses non-structural flood control in existing washes in Goal 4.)**

**GOAL 5 OTHER PUBLIC UTILITY COMPANIES: A MONITORING SYSTEM BETWEEN THE CITY OF PHOENIX AND PUBLIC UTILITY COMPANIES THAT MAINTAINS, EXPANDS AND MONITORS ALL PUBLIC UTILITIES IN A JOINTLY COORDINATED, ORGANIZED MANNER SHOULD BE ENCOURAGED.**

For the city to assure sound development, adequate electric, gas, and communication services must be provided. A strong employment base and continuing economic growth are directly affected by an adequate infrastructure.

The placement of electric power lines (115 kV and above) is decided through a state regulatory process that includes public input. The city of Phoenix provides input into this process for facilities within the city. The Power Plant and Transmission Line Siting Committee makes recommendations on placement of the power lines to the Arizona Corporation Commission. The Commission has final approval of power line routes (115 kV and above). (Figure 10



**FIGURE 7**  
**SOLID WASTE**  
**REGIONS**



shows existing power lines. Figure 11 shows future, approved APS power lines and substations.) SRP has no approved new lines. Maps can be updated as needed to reflect new line locations approved. Improvement districts can assist in funding the undergrounding of major power lines.

The city of Phoenix, through the Subdivision Ordinance, requires placing new utilities underground that are less than 69KV. However, whenever economically feasible in redevelopment areas, placing existing utilities underground should also be encouraged. With the converging demand for television, Internet and communications, the telecommunication boom resulted in an unprecedented demand for the placement of fiberoptic cable.

In addition, the city of Phoenix Engineering and Architectural Services Department has a Utilities Coordinating division working closely with the public utility companies, when issuing permits for utility line development in public rights-of-way and easements. Advance planning for utility facilities and right-of-way is highly desirable because of the cost of relocating utilities installed in streets and other public rights-of way. The city of Phoenix's monitoring system will include participation through regular meetings with utility representatives to exchange information. The city will make information readily available to the public as to where and to whom utility-related issues and concerns can be directed for timely response and resolution.

Since 1985 the use of cellular telephones has expanded greatly. Adequate area coverage assists both personal and business communications. The city encourages adequate coverage while encouraging providers to minimize the visual impact of monopoles through setbacks, screening or other means.

**Policies:**

1. Encourage underground placement of public utilities whenever economically feasible.
2. Assist the public utility companies by providing information such as census data and future site locations for Planned Community Districts.



**FIGURE 8 - Communications Towers atop South Mountain**

3. Consult utility companies early when planning for heavy industrial complexes, large subdivisions, and other large utility users, so the companies may give appropriate consideration to locating major facilities nearby.
4. Manage the public right-of-way, taking into account benefits derived from its use, and minimize traffic disruption due to the underground utility installation requiring collocation and schedule coordination.
5. Minimize the visual impact of facilities to the public.

**Recommendations:**

- A. Design and site monopoles and building-mounted communications equipment to minimize their visual impact.
  - B. Remove or update outdated equipment or facilities as permitted by the Telecommunications Act.
6. Allow and plan for changes in infrastructure needs due to advancements in technology.
  7. Provide adequate service coverage for public facilities.
  8. The city of Phoenix recommends that developers and builders consult with utility representatives about future plans for transmission lines and substation locations that are proposed but not yet constructed.

**GOAL 6 STREET MAINTENANCE: A SAFE PUBLIC STREET NETWORK SHOULD BE MAINTAINED BY THE MOST EFFICIENT AND ECONOMICAL MEANS.**

The Phoenix surface street system consists of over 4,000 miles of streets ranging from over 100 years old to newly-installed. The city continues to grow through new development and annexing county land. This adds more miles of streets of varying age and quality to the system.



**FIGURE 9 - Proper Maintenance Extends the Service Life of Our Streets**

**Policies:**

1. Coordinate between city departments, utilities, private industry and development to minimize cuts and patches in new pavement, recover the costs of repairs, and avoid deterioration of pavement.

**Recommendation:**

- A. Conduct annual pavement condition surveys to determine the street network's surface condition and pavement quality.
2. Continue to explore technological advances in seal coat materials, equipment, and techniques.

**Recommendations:**

- A. Provide an Annual Seal Coat Program to resurface the maximum combined mileage of major, collector and local

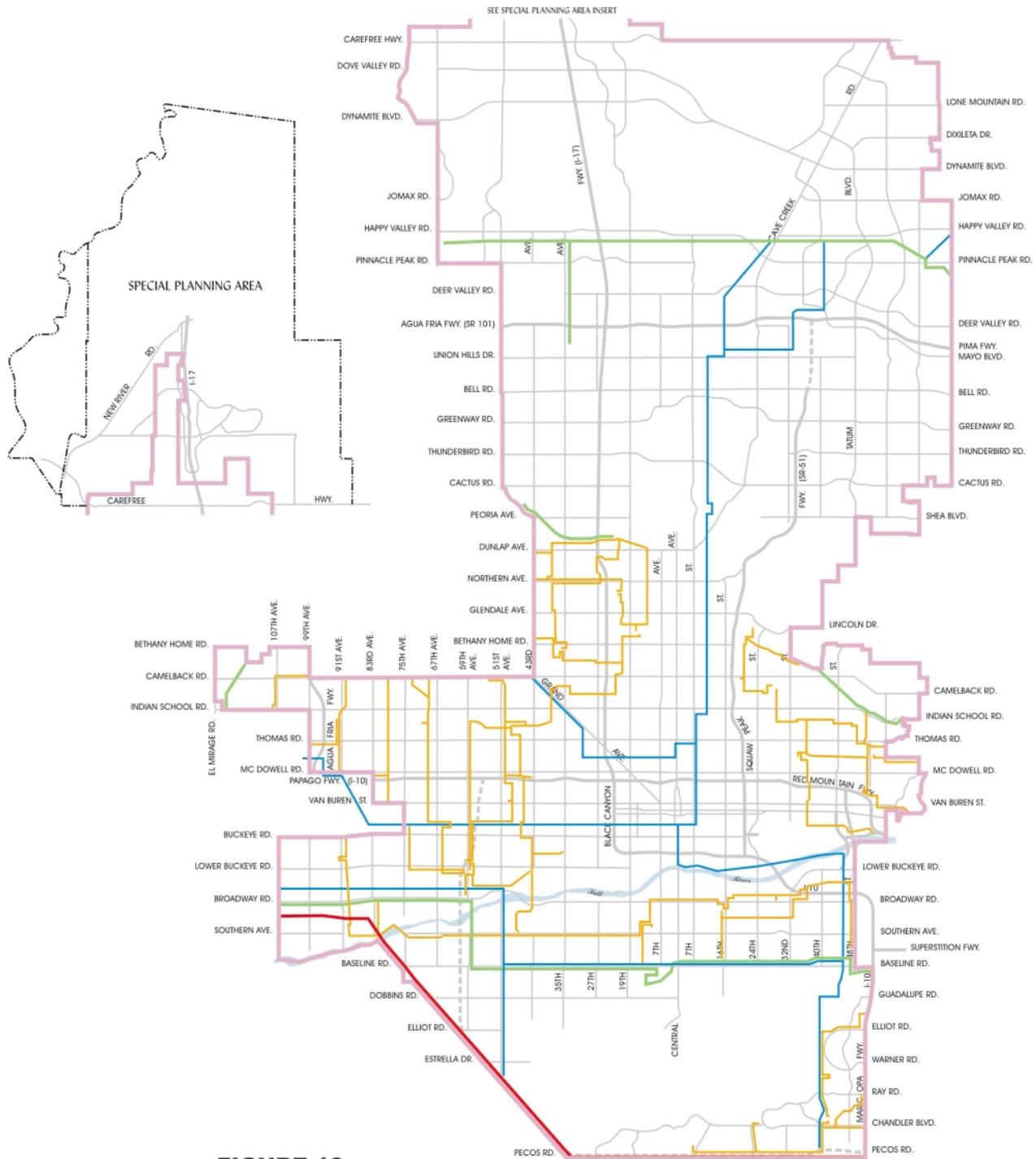
streets, using overlays, microsurfacing, and slurry seals.

- B. Repair curbs, gutters, and drainage facilities as part of the annual seal coat program.

3. Support future street bond issues.
4. Continue to require developers to dedicate right-of-way for and improve streets in conjunction with their projects.
5. Require pavement cuts to be restored to city standards and to their previous condition to maintain the integrity of the street system.



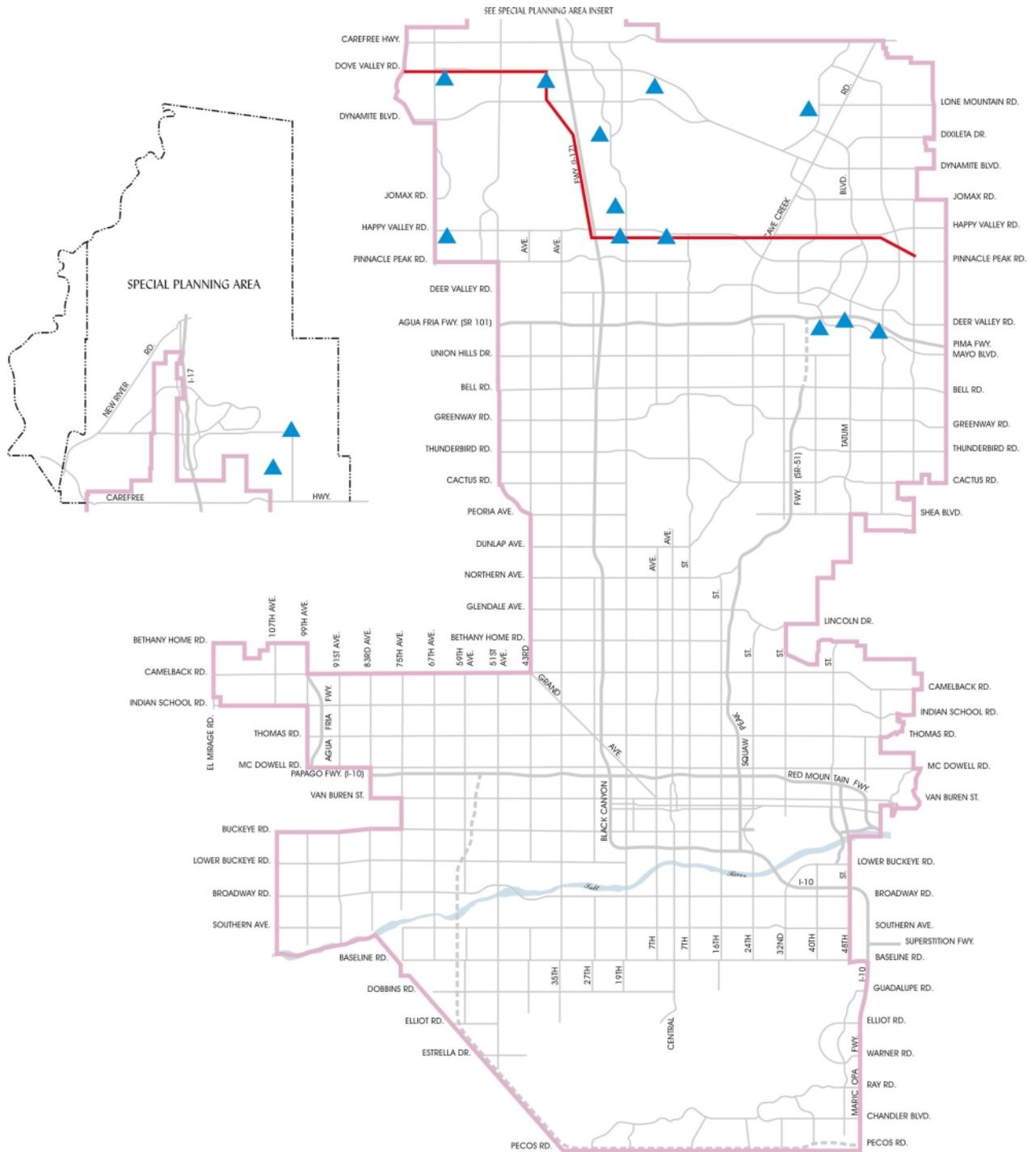
**FIGURE 12 - Annual Surveys Assess Street Conditions**



**FIGURE 10**  
**UTILITY MAP**

- APS 230kv LINE
- APS 69KV LINE
- SRP 230kv LINE
- SRP 500kv LINE





**FIGURE 11**  
**FUTURE UTILITY MAP**

- ▲ FUTURE SUB STATION
- FUTURE UTILITY

